COLUMBIA UNIVERSITY

COLLEGE OF PHYSICIANS & SURGEONS

DEPARTMENT OF OPHTHALMOLOGY

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January 31, 2025

Selection Committee for Helen
Keller Prize for Vision Research

Dear Members of the Committee:

It is my pleasure to nominate Distinguished Professor Gregory S. Hageman, Ph.D., for the Helen Keller Prize for Vision Research based on his research contributions to vision science during the course of his career.

I have known Prof. Hageman for almost 20 years now since we work on the same subject – complex eye diseases – and we have collaborated extensively on our common interest – pathobiology of a very prevalent eye disorder, age-related macular degeneration (AMD). AMD is a very common eye malady of the elderly (estimated at ~30% of people over 75 years of age) and has a major impact on the quality of life and represents a major strain on the US healthcare and the same around the world.

I could elaborate endlessly on Greg's scholarly contributions but let me say from the outset that he is one of the very few scientists who has **generated an entire school in a very important field**. He was the first to suggest, based on pathology of the disease, that the major cause of AMD is the deficient alternative complement pathway in the innate immune system. He also drew parallels with the atypical hemolytic uremic syndrome (aHUS), a kidney disease with similar pathology. This was many years before his hypotheses were unequivocally proven by genetic studies in 2005. I had a good fortune to collaborate with Greg on these studies and we published several seminal papers in PNAS and Nature Genetics, genetically defining the role of variants in Complement Factor H (CFH) and Complement Factor B (CFB), the major players in AMD and aHUS.

There was no stopping Prof. Hageman after that. Using his unique collection of thousands of donor eyes, he has continued to make seminal findings in AMD pathobiology. AMD is called a complex trait for a very good reason; its causes, and disease mechanisms are extraordinarily heterogeneous and complex. Only brave researchers embark on the journey to figure out AMD and Greg not only participated (and still does) in this research, but he was also, and still is, the leader. Not only has his research "reshaped our thinking", but it has also provided many extremely valuable, unique resources for basic and translational science. A good example is his recent research into the second major genetic locus in AMD, called ARMS2. While he was not involved in defining the locus, he, again,

solved the pathobiology of this, again very complex, locus. Many studies since 2005 have claimed that they know which exact gene and/or variant, is the causal one, only to be subsequently proven wrong. The recent study Prof. Hageman and colleagues from the Sharon Eccles Steele Center for Translational Medicine (SCTM), which he created at the John A. Moran Eye Center, clearly defined the genetic and functional basis of a major subset of AMD. He also postulated that the majority of AMD is divided into two separate entities, one caused by dysfunction of the CFH locus and the other by the same in the ARMS2 locus.

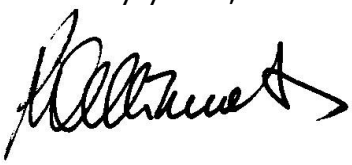
Having mostly solved the basis of AMD, Prof. Hageman has been focused on finding treatment options for AMD based on his seminal work. In doing that he has taken mostly the corporate approach by starting several companies that use his vast grant portfolio and, thereby, raising tens of millions for his research and the University of Utah. He recently brought the first of several therapies the SCTM has developed for AMD into FDA-approved clinical trials. I am optimistic that many of his ideas will materialize to the benefit of the millions of patients in the US alone.

Prof. Hageman's teaching and service record is similarly remarkable. He has mentored numerous students, residents, visiting scientists, etc., who have gained immensely from the best in the field. Dr. Hageman is one of the most sought-after speakers since his work is trailblazing, and he also presents it in a clear, entertaining, and didactical fashion that captivates all audiences. We have organized and/or participated in many courses together in the US and around the world and I cannot say enough about the impact of his presentations.

In conclusion, Prof. Hageman is a trailblazer in the complex field of retinal diseases where his studies have truly earned him recognition around the world. I wholeheartedly support bestowing him with the Helen Keller Prize for Vision Research and I thank you for your utmost consideration.

Please do not hesitate to contact me in case you want me to elaborate on any of the above.

Sincerely yours,



Rando Allikmets, Ph.D.

Duke University Medical School

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January 15, 2025

Re: Prof. Gregory S. Hageman, Ph.D.

Dear Helen Keller Prize for Vision Research Award Committee Members,

I am writing to nominate Distinguished Professor Gregory S. Hageman, PhD, director of the Sharon Eccles Steele Center for Translational Medicine at the John A. Moran Eye Center at the University of Utah, to receive this prestigious award. I give my most enthusiastic support for Dr. Hageman as an example of an individual of high character whose contributions to vision science, particularly in the field of macular degeneration, are deserving of this award.

I have known Dr. Hageman for three decades, having first met him in the early '90's at ARVO, our primary annual eye conference, and I have followed his work closely since. He is an accomplished retinal cell biologist and creative thinker who I consider the leading expert in the cell biology of and translational genetics of AMD, the most common cause of blindness in the developed world.

First, a few words about my qualifications to evaluate Dr. Hageman. I am the George and Geneva Boguslavsky Professor of Ophthalmology and a Professor of Cell Biology at Duke University. I have a long-standing interest in the biology and pathobiology of the retina and in particular, mouse models of retinal degeneration dating back to my identification of the gene responsible for retinal degeneration in the rd (*rd1*) mouse (at UCLA) many years ago. I have over 25 years of experience working in the field AMD; thus, my interests directly overlap with that of Dr. Hageman.

Not surprisingly, I have followed Dr. Hageman's research since I shifted my research focus from inherited retinal degenerations to AMD at the start of my first faculty position in 1994. Over the years I have had the opportunity to collaborate with Dr. Hageman and interact with him at 'think tank' meetings. I am Vice Chair of the Executive Scientific Advisory Board of the Foundation Fighting Blindness and recently finished my term on the National Eye Institute Board of Scientific Counselors and a member of the Ryan Initiative for Macular Research (RIMR) Executive Board. In addition, I served on the promotion and tenure committee for the Department of Ophthalmology at Duke. Taken together, I am well suited to assess and benchmark Dr. Hageman's credentials. Dr. Hageman has made seminal contributions to our understanding of AMD over the last 30 years that began with a series of now classic papers identifying the protein components of drusen in AMD patients. Drusen, an early hallmark of AMD, are extracellular deposits of lipid- and protein-rich debris that accumulate below the retinal pigmented epithelial (RPE) cell layer in the outer retina. These studies were born out of his idea that a thorough understanding of the composition of drusen, and their sources would provide insight into the pathobiology underlying AMD. Not only were he and his colleagues the first to identify the apolipoproteins, vitronectin, amyloid beta and complement proteins – to name a few – in drusen but, more importantly, they developed testable hypotheses that these proteins and their associated pathways play a pathological role in AMD that forms the basis of much of our current understanding of the disease. His hypothesis and its scientific premise are beautifully described in his first author review in the

premiere journal of Ophthalmology, *Progress in Retinal Eye Research* (*PRER* 19.7 impact factor), in 2001 and is its most cited article with 1052 citations. This paper, titled, "*An integrated hypothesis that considers drusen as biomarkers of immune-mediated processes at the RPE-Bruch's membrane interface in aging and age-related macular degeneration*," was the first to suggest that there may be numerous AMD genotypes before any gene had been identified that caused a significant portion of AMD and "that complement activation is a key pathway that is active both within drusen and along the RPE-choroid interface."

This review foretold two of the seminal discoveries that Dr. Hageman would publish:
The first was the discovery, published in 2005 in *Proceedings of the National Academy of Sciences* (*PNAS*), that a common haplotype in the complement factor H (*CFH*) gene predisposes individuals to AMD, which has been cited 1,651 times. Three other papers on the subject were published back-to-back in *Science* the same year also describing the association of *CFH* with genetic risk for AMD. But what set Dr. Hageman's study apart was that he used a candidate gene screen of *CFH* in AMD and controls compared to the more gene agnostic approaches used in the other three papers. While all four of the papers took advantage of previous studies identifying chromosome (Chr) 1q32 as harboring a susceptibility locus for AMD where *CFH* resides, Dr. Hageman zeroed in on *CFH* based on the fact that individuals with the rare kidney disease, membranoproliferative glomerulonephritis type II (MPGNII), which is caused by uncontrolled activation of the alternative complement pathway – for which CFH is the soluble regulator – also present with an ocular phenotype of central drusen accumulation phenotypically similar to AMD. This scientific leap exemplifies the out of the box thinking that Dr. Hageman brings to bear on his research that comes from his broad understanding of disease systems and pathways far beyond the eye.

More than 30 other genes have been implicated in AMD disease risk since *CFH* but only one other gene locus located on Chr 10q26 is a stronger genetic risk factor for AMD. This locus contains the age-related maculopathy susceptibility 2 (*ARMS2*) and high temperature requirement A serine peptidase 1 (*HTRA1*) genes. Since the identification of susceptibility genes on 10q26 in 2005 there has been a great deal of controversy around identifying which of these two genes or variants are causative for AMD. This has recently been resolved by Dr. Hageman and his colleagues in a paper published in 2021 in *PNAS* taking advantage of one of the largest and best characterized collection of human AMD and control donor eyes and blood samples that he has gathered over the years. They showed that the HtrA1 protein, which is expressed in many tissues, is specifically reduced in the RPE of AMD patients with the Chr10 risk genotype *and* that this is due to disruption of a cis-regulatory element in the upstream *ARMS2* intron. This relationship explains not only the tight linkage of these two regions but also establishes that HtrA1 augmentation – not inhibition as suggested by previous studies – should be pursued as a potential therapy in high genetic risk patients.

The second seminal discovery by Dr. Hageman that was also previewed by his 2001 review in *PRER* was recently published in two papers: The first one published in 2021 in *Human Molecular Genetics* showed that AMD is unique in that the 2 loci, *ARMS2/HTRA1* and *CFH-CFHR5*, are associated with much stronger effects than typically seen for polygenic diseases. Together, they account for 90% of the genetic susceptibility for AMD and – importantly – this study showed that the protective allele of *CFH* for AMD mitigates AMD risk in both the *CFH* locus and the *ARMS2/HTRA1* locus. This strongly supports efforts to develop therapies augmenting CFH in patients with these genetic risk profiles on either loci. The second paper, published in *JAMA Ophthalmology* last year, was based on Dr. Hageman's use of his giant repository of AMD eyes to identify patients with pure Chr 1 disease (*CFH-CFHR5*) or pure Chr 10 disease (*ARMS2/HTRA1*) that were then studied independently to identify the unique phenotypes of each, establishing that they are, in fact, two separate AMD diseases with distinct underlying mechanisms associated with each locus!

Dr. Hageman has translated his seminal findings into developing and patenting a new therapy for Chr 1 AMD based on CFH augmentation. This is an AAV-based gene therapy delivering the protective form of CFH in a single injection into the eye to slow or halt AMD disease progression. Dr. Hageman's team

uncovered genetic evidence that the therapy may also provide benefits for patients with Chr 10-directed AMD as well. Phase One FDA-approved clinical trials began in December of 2022. If successful, this therapy would be the third gene therapy approved by the FDA and a beacon of hope for the millions of people each year who lose their vision to AMD and can pass on a genetic risk for developing the disease to their children.

Dr. Hageman has a *h*-index of 52 (Web of Science). His total contributions to the literature now stand at 224 original publications, with a total of 13,631 citations (8,408 citing articles) including 34 that have been cited over 100 times. Of these Dr. Hageman is first or last author on 106 of the papers. Many of these publications are in high quality journals, including *Progress in Retinal Eye Research, PNAS*, *Human Molecular Genetics* and *Nature Genetics*. Equally impressive, is that he has over 60 patent applications that are pending or patents that have already been granted by the United States Patent and Trademark Office, including many that relate to CFH-based AMD treatments. These patents exemplify his use of genetics and mechanistic biology to inform development of therapeutics.

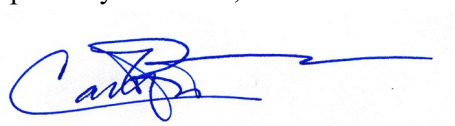
In terms of extramural support, Dr. Hageman's work has been continually funded since 1985. His program has been supported by a nice mix of private, foundation, industry, and federal dollars, including the NIH as well as over a hundred million dollars in Start Up and Series A and B financing for three companies developing complement-based therapies for AMD.

Dr. Hageman has trained over a hundred graduate students, postdoctoral research fellows, residents and junior faculty and he has hosted many of the current other luminaries in the AMD field who have sought time to work with him during their sabbaticals and other sponsored leave.

Further evidence of Dr. Hageman's status as a respected leader in vision research is provided by his scholastic honors and awards, invitations to serve on study sections, scientific advisory panels and as a consultant. Moreover, he is a highly sought-after lecturer and speaker. Dr. Hageman gave over 20 invited international and national talks just in the last 5 years including the 2nd Annual David Pepperberg Memorial Lecture at the Ryan Initiative for Macular Research, Irvine, CA and the Distinguished Joseph M. Bryan Research Lecture at Duke University, Durham, NC in 2022.

In summary, I support Dr. Hageman as a candidate for the Hellen Keller Vision Prize for Vision Research with my utmost enthusiasm.

Respectfully submitted,



Catherine Bowes Rickman, Ph.D., FARVO
George and Geneva Boguslavsky Professor of Ophthalmology
Professor of Cell Biology

Gregory S. Hageman, PhD, FARVO

John A. Moran Presidential Professor
Distinguished Professor
Executive Director, Sharon Eccles Steele Center for Translational Medicine
Department of Ophthalmology & Visual Sciences
John A. Moran Eye Center
Spencer Fox Eccles School of Medicine
University of Utah
65 N Mario Capecchi, Salt Lake City, UT 84132
801-213-2174 (Office Direct)
801-213-2424 (Administrative Assistant)
gregory.hageman@hsc.utah.edu

Education

- BS in Biological Sciences, Summa Cum Laude, University of Southern California, 1976
- PhD in Biology, University of Southern California, 1983

Professional Experience (Full-Time Academic Positions)

Held a total of 23 positions since 1978, including:

- Resident Biologist/Assistant Director, Institute for Marine and Coastal Studies, USC, 1978-1981
- Assistant Professor, Department of Anatomy and Cell Biology, USC, 1984-1987
- Associate Professor and Director of Research, Department of Ophthalmology, St. Louis University, 1989-1994
- Professor, Department of Ophthalmology and Visual Sciences, University of Iowa, 1997-2007
- John A. Moran Presidential Professor, University of Utah, 2009-Present
- Executive Director, Steele Center for Translational Medicine, John A. Moran Eye Center, 2009-Present

Corporate Positions

- Founder and Director, OcuTech, Inc., 1992-1996
- Scientific Founder and Chief Scientific Officer, Optherion, Inc., 2005, 2007-2009
- Scientific Founder Chief Scientific Officer and Board Member, Voyant Biotherapeutics LLC, Boston, MA, 2011-2020
- Chief Scientific Officer, Oriole Biotherapeutics Inc., South San Francisco, CA, 2020-2021
- Chief Scientific Officer, Perceive Biotherapeutics Inc., 2021-Present

Editorial and Reviewer Experience

- Served as a reviewer for 28 journals including American Journal of Ophthalmology, Nature Genetics, and Investigative Ophthalmology and Visual Science
- Guest Editor for Vision Research, Special Issue "Mechanisms in Macular Degeneration"

Scholastic Honors

Received 49 honors since 1974, including:

- Olga Keith Wiess Scholar, Research to Prevent Blindness, 1988
- Lew R. Wasserman Merit Award, Research to Prevent Blindness, 1998
- Fondazione G.B. Bietti Award for Outstanding Research in Retinal Physiology and Pathology, 2000
- Roger H. Johnson Prize for Macular Degeneration Research, 2006
- Foundation Fighting Blindness Trustee Award, 2006
- Alcon Research Institute Award, 2009
- Lighthouse International Madame Georgette Pisart Vision Award, 2012
- Research to Prevent Blindness Senior Investigator Award, 2012
- Macula of Paris Prix de la Recherche, 2012
- Governor's Medal for Science and Technology, 2022
- American Academy of Ophthalmology Achievement Award, 2014

Administrative Experience

- Director of Research, Anheuser-Busch Eye Institute, St. Louis University, 1992-1994
- Director, Cellular and Molecular Biology Center, 2000-2008
- Executive Director, Sharon Eccles Steele Center for Translational Medicine, John A. Moran Eye Center, University of Utah, 2009-Present

Grant Review Committee/Study Section

- Reviewed grant proposals between 1983-Present for the National Eye Institute (NIH), the National Science Foundation (NSF), the Deutsche Forschungsgemeinschaft, The Guide Dogs for the Blind Association, Fight for Sight, Fight for Sight (England), Retinitis Pigmentosa Foundation, Foundation Fighting Blindness, RNIB, Welcome Trust, KidNeeds, and Retinitis Pigmentosa Eye Research Foundation (Canada), 1983-Present
- Served on 12 NIH study sections between 1995-2016, including the NIH ZRG1 (Neuroscience, Mental Diseases, and Aging) Study Section and the NIH BDPE (Vision) Study Section

Consulting Experience

Held 25 consulting positions since 1978, including consulting for National Geographic, Pfizer Inc., and Allergan Pharmaceuticals

Memberships in Professional Societies

Current member of nine societies, including the American Society for Cell Biology, Association for Research in Vision and Ophthalmology, and the Macula Society.

Funding

Active Grants: Total of $6,209,233 (2020-2025)

- Development of Therapeutics for Chromosome 1- and Chromosome 10-directed Age-related Macular Degeneration, Perceive Biotherapeutics, Inc.
- Drug Targets, Therapeutics and Diagnostics for the Treatment of AMD, Perceive Biotherapeutics, Inc.
- Differential Staging and Progression of Age-related Macular Degeneration Driven by Genetic Risk Polymorphisms, Macula Society UK

Past Grants: Total of $48,401,830 (1979-2023)

- Garnered contiguous funding from the National Institutes of Health for more than 35 years. Past grants from NIH, Foundation Fighting Blindness, and various biotherapeutics companies. This includes principal investigator for 1-R24-EY017404, Development of Complement Modulating Therapeutics for Age-related Macular Degeneration, a $14.7M R24 translational award supported by the National Eye Institute and involving colleagues from 12 participating national and international institutions.

Past Contracts: Total of $7,635,355 direct costs, 1988-2015

Foundation and Trust Awards: Total of $51,284,475 provided to the Sharon Eccles Steele Center for Translational Medicine, 2010-Present. Additional awards from 60 foundations including Research to Prevent Blindness.

Teaching Responsibilities

Responsibilities between 1976-Present have included:

- 15 course lectures
- Director, Resident Lecture Series at St. Louis University School of Medicine
- Medical Student Elective Rotations laboratory teaching at the University of Iowa and the University of Utah
- Small group teaching at St. Louis University School of Medicine
- Trainee supervision for 27 faculty, 34 fellows, 19 residents, 11 PhD/Doctorates, 2 masters, 37 medical students, 14 undergraduate students, and 4 high school students

Publications

Extensive publication record with over 160 peer-reviewed journal articles, one book, nine book chapters, and nine peer-reviewed articles.

Select publications:

- Schmitz-Valckenberg S, Zouache MA, Hageman GS, Fleckenstein M (2022). From Genes, Proteins, and Clinical Manifestation: Why do we need to better understand age-related macular degeneration? Ophthalmol. Sci. 2(2): 100174. doi.org/10.1016/j.xops.2022.100174
- Zouache MA, Faust CD, Silvestri V, Akafo S, Lartey S, Mehta R, Carroll J, Silvestri G, Hageman GS, Amoaku WM (2023). Retinal and choroidal thickness in an indigenous population from Ghana: comparison with individuals with European or African Ancestry. Ophthalmol Sci 4(2):100386, https://doi.org/10.1016/j.xops.2023.100386
- Li J, Copland DA, Clare AJ, Gorski M, Richards BT, Scott L, Theodoropoulou S, Greferath U, Buck H, Cox K, Bell O, Ou K, Powell JLB, Wu J, Robles LM, Li Y, Nicholson LB, Coffey PJ, Fletcher E, Guymer R, Radeke MJ, Heid I, Hageman GS, Chan YK, Dick AD (2023). Replenishing age-related decline of IRAK-M expression in retinal pigment epithelium restores homeostasis and attenuates outer retinal degeneration. Submitted, Sci. Adv.
- Amoaku WM, Cushley L, Silvestri V, Akafo S, Amissah-Arthur KN, Lartey S, Hageman CN, Pappas CM, Hubbard WC, Bernstein PS, Vitale A, Roberts M, Virgili G, Hageman GS, Silvestri G (2023). Vitreomacular interface abnormalities in the Ghanaian African. Eye doi: 10.1038/s41433-023-02737-z. Online ahead of print.
- Monavarfeshani A, Yan W, Pappas C, Odenigbo KA, He Z, Segre A, van Zyl T, Hageman GS, Sanes JR (2023). Transcriptomic analysis of the ocular posterior segment completes a cell atlas of the human eye. Proc Natl Acad Sci USA 120(34): e2306153120. https://doi.org/10.1073/pnas.2306153120.
- Zouache MA, Richards BT, Pappas CM, Anstadt RA, Liu J, Corsetti T, Matthews S, Hageman JL, Williams BL, Hageman GS (2024). Levels of complement factor h-related 4 protein do not influence susceptibility to age-related macular degeneration or its course of progression. Nature Commun 15(1):443. doi: 10.1038/s41467-023-44605-0.
- Faust CD, Klettner CA, Toso M, Hageman GS, Eames I, Luthert PJ, Zouache MA (2024). The vascular geometry of the choriocapillaris associated with spatially heterogeneous molecular exchange with the outer retina. J Physiol https://doi.org/10.1113/JP285050.
- Williams BL, Zouache MA, Seager NA, Pappas CM, Liu J, Andstadt RA, Hubbard WC, Thomas J, Hageman JL, Mohler J, Richards BT, Hageman GS (2024). Levels of the HtrA1 protein in serum and vitreous humor are independent of genetic risk at the 10q26 locus. Invest Ophthalmol Vis Sci. 65(4): 34; https://doi.org/10.1167/iovs.65.4.34.
- Pompoco C, Paulson C, Fino N, Taylor S, Patil A, Conley M, Barker J, Ritch R, Hageman GS, Curtin K, Wirostko B (2024). Risk of age-related macular degeneration in patients with exfoliation syndrome: the Utah project on exfoliation syndrome (UPEXS). J Clin Transl Ophthalmol 2, 140–154. https://doi.org/10.3390/jcto2040012.
- Miller JML, Thompson BR, Handa JT, Luthert P, Chakravarthy U, Csaky KG, Bird A, Young BK, Iyenger SK, Baek J, Zouache MA, Richards BT, Hageman GS, Rodrigues G, Bharti K, Flannery JG, Gorin MB, Rickman CB (2024). Dissecting the Biological Complexity of Age-

Related Macular Degeneration: Is it One Disease, Multiple Separate Diseases, or a Spectrum? Submitted, Exp Eye Res.

Patents

Filed 89 active patents (with 288 patents closed or abandoned) related to the diagnosis and treatment of AMD and other retinal conditions. Recent patents include:

- Hageman GS, Richards BT. Gene Therapy for Macular Degeneration and Other Chromosome 1-Directed Diseases. EPO application 19837407.6 (22-July-2019), Published, (610EP).
- Hageman GS, Richards BT. Gene Therapy for Macular Degeneration and Other Chromosome 1-Directed Diseases. Canada application 3,106,838 (22-July-2019), Published, (610CA).
- Hageman GS, Richards BT. Gene Therapy for Macular Degeneration and Other Chromosome 1-Directed Diseases. EPO application 17/261,559 (22-July-2019), Published, (630US).
- Williams B, Hageman GS, Richards BT, Youssef O. HTRA1 Modulation for Treatment of AMD. Canada application 3,136,119 (10-April-2020), Pending (810CA).
- Williams B, Hageman GS, Richards BT, Youssef O. HTRA1 Modulation for Treatment of AMD. China application 202080042929.4 (10-April-2020), Published (810CN).
- Williams B, Hageman GS, Richards BT, Youssef O. HTRA1 Modulation for Treatment of AMD. EPO application 202080042929.4 (10-April-2020), Published (810EP).
- Williams B, Hageman GS, Richards BT, Youssef O. HTRA1 Modulation for Treatment of AMD. Japan application 2021-559892 (10-April-2020), Published (810JP).
- Williams B, Hageman GS, Richards BT, Youssef O. HTRA1 Modulation for Treatment of AMD. United States application 17/599,979 (10-April-2020), Published (810US).
- Hageman GS & Richards BT. Dual Transgene Vectors Encoding a Complement Activity Modulating Element. United States application to be filed (900PR).
- Hageman GS & Richards BT. Multigene Constructs For Treatment of Age-Related Macular Degeneration and Other Complement Dysregulation-Related Conditions. PCT application PCT/US2022/040800 (18-Aug-2022), Published (1100PC).

Keynote/Invited/Visiting Professor Lectures and Grand Rounds

- Delivered more than 100 lectures at international and national conferences, universities, and research institutions since 1984. Topics included the role of complement in AMD, the molecular environment of photoreceptors, and the development of gene-directed therapeutics for AMD.
- 20 grand rounds presentations

Recent lectures include:

- Age-related Macular Degeneration: A Tale of Two Biologies - Second Annual David Pepperberg Memorial Lecture, Ryan Initiative for Macular Research, Irvine, California, 2022
- Elucidating the Association between Complement Factor H-Related 4 and Age-related Macular Degeneration - Aegean 14th International Conference on Complement Therapeutics, Rhodes, Greece, 2022
- Expression Quantitative Trait Loci Influencing Systemic Complement Factor H-related Protein 4A Concentration Are Not Independently Associated With Chromosome 1-directed Age-related Macular Degeneration Risk or Protection - European Meeting on Complement in Human Disease, Bern, Switzerland, 2022
- Retinal and Choroidal Thickness Differ Markedly Between Populations With African and European Ancestry - Euretina, 2022
- Protective CFH-CFHR5 Haplotypes Mitigate Risk for Age-Related Macular Degeneration Associated With the ARMS2/HTRA1 Locus - Euretina, 2022
- Blood and Tissue Levels of Factor H-Related 4 Protein do not Modulate Susceptibility to Age-related Macular Degeneration or its Progression Course - ICER, 2023
- First Manifestation of Complete Retinal Pigment Epithelium and Outer Retinal Atrophy (cRORA) in Age-related Macular Degeneration: Associations With Genetic Risk Profile - Macula Society, 2023
- Initial Manifestation of Complete Retinal Pigment Epithelium and Outer Retinal Atrophy (cRORA) in Age-related Macular Degeneration: Associations With Genetic Risk Profile - ARVO, 2023
- Assessment of Determinants of Mass Transfers between Choriocapillaris and Retina in the Human Macula - ARVO, 2023
- A Cell Atlas of the Whole Human Eye - Folkman Research Day, Brigham Children’s Hospital, Boston, 2023